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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/797,489

03/10/2004

Mark A. Turner

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07/27/2006

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EXAMINER

LE, DAVID D

ART UNIT

PAPER NUMBER

3681

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/797,489	TURNER, MARK A.	
	Examiner	Art Unit	
	David D. Le	3681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7-19,21-28 and 38-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5,7-19,21-28 and 48 is/are allowed.
- 6) ☒ Claim(s) 38-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This is the second Office action on the merits of Application No. 10/797,489, filed on 10 March 2004. Claims 1-5, 7-19, 21-28, 38-48 are pending.

Documents

2. The following documents have been received and filed as part of the patent application:
 - Power of Attorney, received on 05/09/05
 - Replacement drawing, received on 05/02/06

Drawings

3. The replacement drawing of Fig. 1 was received on 02 May 2006. This drawing is approved.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 38-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 6,637,699 to Banks et al. in view of U. S. Patent No. 4,272,040 to Bastian et al.**

Claims 38-47:

Banks (i.e., Figs. 1-9; column 3, line 16 – column 8, line 26) discloses a method and an apparatus (i.e., Fig. 1, element 100) for controlling a trajectory of a projectile comprising:

- A control surface (i.e., Fig. 1, element 104, 106, 108 or 110);
- A first spur gear (i.e., Fig. 3, being the roll spur gear element 302);
- A first drive assembly engaged with the first spur gear (i.e., Fig. 3, element 202);
- A second spur gear (i.e., Fig. 3, the pitch spur gear element 306);
- A second drive assembly engaged with the second spur gear (i.e., Fig. 3, element 206);
- A third spur gear (i.e., Fig. 3, yaw spur gear element 304);
- A third drive assembly engaged with the third spur gear (i.e., Fig. 3, element 204);
- A first gear assembly mechanically capable of being coupled with the control surface and engaged with the spur gears (i.e., Fig. 3, element 330);
- A second gear assembly mechanically coupled with a second control surface and engaged with the first spur gear and the third spur gear (i.e., Fig. 3, element 326);
- A central tube (i.e., Fig. 2, being the interior of the flange 220);
- a bearing (i.e., Fig. 3, elements 366, 368, and 370) disposed between each of the spur gears and the central tube;
- A housing (i.e., Fig. 1, element 102);

- A thrust bar (i.e., Fig. 2, being the support element 212) mounted to the housing and to the central tube, such that one end of the gear assembly is mounted to the thrust bar;
- A motor (i.e., Fig. 3, element 324);
- A speed reducer mounted to the motor and having an output shaft (i.e., Fig. 3, element 322);
- A drive gear (i.e., Fig. 3, element 320) mounted to the output shaft and engaged with one of the spur gears; and
- Wherein the first spur gear is a roll spur gear and the second spur gear is one of a pitch spur gear and a yaw spur gear (i.e., Fig. 3, as set forth above).

Banks does not explicitly disclose a blast tube.

Bastian (i.e., Figs. 1, 4 and 5; column 3, line 7 – column 5, line 34), on the other hand, discloses a rocket thrust vector control system comprising:

- A rocket propelled missile (i.e., Fig. 1, element 1);
- A cylindrical body (i.e., Fig. 1, element 7);
- A warhead (i.e., Fig. 1, element 5);
- A rocket engine (i.e., Fig. 1, element 3);
- A blast tube (i.e., Fig. 1, element 8);
- A control surface (i.e., Fig. 1, element 15, 16, 17 or 18); and
- A gear assembly (i.e., Fig. 5, elements 47 and 48).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Banks to include a blast tube, in view of Bastian, in order to allow the exhaust gas of the projectile engine to exit the projectile and to propel the projectile to its intended target.

Allowable Subject Matter

6. Claims 1-5, 7-19, 21-28 and 48 are allowed.

Response to Arguments

7. Applicant's arguments with respect to claims 38-47 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 3681


CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Le whose telephone number is 571-272-7092. The examiner can normally be reached on Mon-Fri (0700-1530).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A. Marmor can be reached on 571-272-7095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


ddl


CHARLES A. MARMOR
SUPERVISORY PATENT EXAMINER
ART UNIT 3681